DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-014846
Date Inspected: 12-May-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See Below	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes ☐ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☐ Yes ☑ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: OBG

Summary of Items Observed:
CWI Inspectors: Mr. Li Yang, Mr. Lv Li Qing, Mr. Shu Shang Hai, Mr. Li Yan Hua

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

Segment Trial Assembly

ABF issued "Inspection Notification Sheet" number 05112010-2 item #1 informing QA that on 05-12-2010 at 19:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld OBE8-004 and OBE8-003 which joins OBG top deck plates between segments 8AE and 8BE. These welds are located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that the weld repair areas are UT acceptable.

This QA Inspector performed ultrasonic inspections of "Y" location 1610mm in weld OBE8-002 and "Y" location 1500mm in weld OBE8-004 for detection of longitudinal and planar transverse indications utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and no UT rejections were observed. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report and the photograph below for additional information concerning this inspection.

ABF issued "Inspection Notification Sheet" number 05112010-2 item #2 informing QA that on 05-12-2010 at

19:00 hours ABF Inspectors will be performing ultrasonic (UT) inspections of repaired weld OBE8-005 which joins OBG side plates between segments 8AE and 8BE. This weld is located in the trial assembly area. ABF/Sense UT Inspectors informed this QA Inspector that the weld repair areas are UT acceptable. This QA Inspector performed ultrasonic inspections of "Y" location 790mm for detection of longitudinal and planar transverse indications utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and no UT rejections were observed. Items observed on this date appeared to generally comply with applicable contract documents. Note: These inspections are being documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

This QA Inspector observed ZPMC welder Mr. Yun Chuansheng, stencil 045221 is using shielded metal arc welding procedure specification WPS-SMAW-1G(1F)-Repair-1 to make critical weld repair OBW7C-003 as documented on critical weld repair document B-CWR-1524. This weld joins the bottom plates between OBG segment 7CW and 7DW. This QA Inspector observed a welding current of approximately 160 amps, the base material is being preheated with an electrical heating element and that Mr. Yun Chuansheng appears to be certified to perform this welding. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zang Yanbo, stencil 045196 is using shielded metal arc welding procedure WPS-345-SMAW-4F-(4F)-Repair-1 to make 4G (overhead position) shielded metal arc weld repair weld OBW7A-003 as documented on critical weld repair document B-CWR-1524. This weld joins the deck plates between OBG segment 7CW and 7DW. This QA Inspector observed a welding current of approximately 155 amps. This QA Inspector observed the base material appears to have been preheated with a torch prior to welding and Mr. Zang Yanbo appears to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Xi Xianyou, stencil 047866 is using flux cored welding procedure WPS-FCA-2G(2F)-Repair to make OBG segment 12AW longitudinal diaphragm weld repair SEG3004X-045. This weld is being repaired as stated on Caltrans approved critical weld repair B-CWR-1497 which requires that the base material where this weld repair is being made is to be maintained at a minimum of 160 degrees Celsius and gradually brought to an ambient temperature. This QA Inspector observed the base material within approximately 60 mm from the weld appears to be a minimum of 160 degrees Celsius but below 160 degrees Celsius beyond the 60 mm distance. This QA Inspector informed ZPMC CWI Mr. Shu Shang Hai the wording in the critical weld repair stipulates the base material heating requirements. Mr. Shu Shang Hai did not appear to understand very much of the English language, but he was able to understand that additional base material preheating was required and he had another ZPMC worker use a torch to heat the base material where this welding was taking place. This QA Inspector observed that Mr. Xi Xianyou appears to be certified to make this weld. This QA Inspector observed a welding current of approximately 280 amps and 31.7 volts. Items observed on this date do not fully appear to comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. He Hanbi, stencil 202122 using flux cored welding procedure WPS-FCA-2G(2F)-Repair to make OBG segment 12AW longitudinal diaphragm weld repair SEG3004V-050. This weld is being repaired as stated on Caltrans approved critical weld repair B-CWR-1504 which requires that

the base material where this weld repair is being made is to be maintained at a minimum of 160 degrees Celsius and gradually brought to an ambient temperature. This QA Inspector observed the base material within approximately 50 mm from the weld appears to be a minimum of 160 degrees Celsius but below 160 degrees Celsius beyond the 50 mm distance. This QA Inspector informed ZPMC CWI Mr. Shu Shang Hai the wording in the critical weld repair stipulates the base material heating requirements. Mr. Shu Shang Hai did not appear to understand very much of the English language, but he was able to understand that additional base material preheating was required and he had another ZPMC worker use a torch to heat the base material where this welding was taking place. This QA Inspector observed a welding current of approximately 285 amps and 30.0 volts. The photograph shown below shows the opposite side of the plate from where the weld repair was being made. Items observed on this date do not fully appear to comply with applicable contract documents.

This QA Inspector observed ZPMC welder Ms. Wang Caili, stencil 045203 is using flux cored welding procedure specification WPS-B-T-2232-TC-U4b-F-2 to make weld SEG043C-065 between a longitudinal diaphragm and the bottom plate at OBG segment 8AW panel point 66. This QA Inspector measured a welding current of approximately 325 amps Ms. Wang Caili appears to be certified to make this weld. Items observed by this QA Inspector appear to be progressing in compliance with project specifications.

Yard behind OBG bay 19

This QA Inspector observed ZPMC welder Mr. Bi Xiaofei, stencil 045204 is using shielded metal arc procedure WPS-B-P-2112-FCM-1 to make various repair welds of SSD12A-027 in OBG segment 10AW panel point 88. This QA Inspector observed Mr. Bi Xiaofei appears to be certified to make this weld and the shielded metal arc welding electrodes are being stored in an electrically heated electrode storage container which is warm to the touch and the base material is being preheated with a torch prior to welding. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed an unknown welder appears to have been using shielded metal arc process to make various repair welds between the deck plate diaphragm and the floor beam in OBG segment 10AW panel point 86. This welder left the area shortly after this QA Inspector arrived and this QA Inspector was not able to determine the name or any other information as to what was being welded. This QA Inspector did observe a rod oven that contained approximately twenty shielded metal arc welding electrodes. This rod oven was not connected to any electrical power supply and all of these electrodes appeared to be at an ambient temperature. The welding electrodes were removed from the oven and were discarded. Items observed on this date do not fully appear to comply with applicable contract documents.

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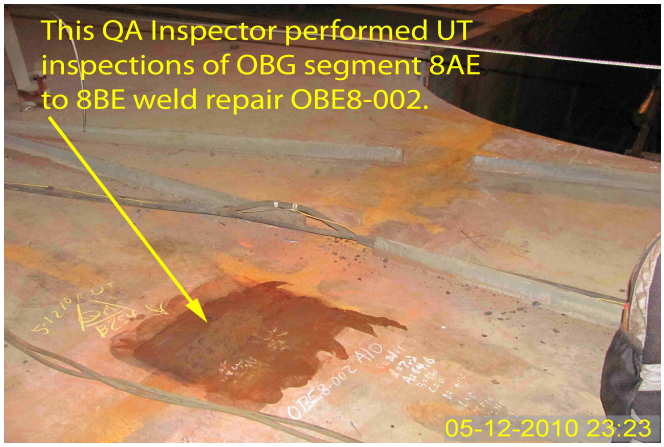

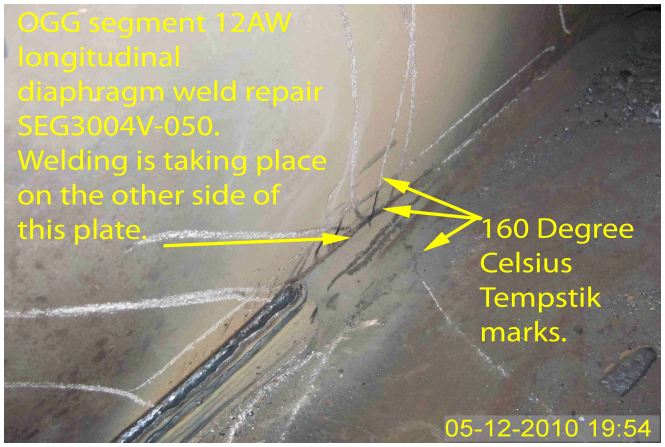

Summary of Conversations:

See Above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer